



Attorney's Docket No. 1000500-000301

Patent

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JPW

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of

Anette BUSCHKA et al.

Application No.: 09/870,517

Filed: June 1, 2001

For: A TEXTILE FIBRE REINFORCED  
ABSORBENT MATERIAL

) **Mail Stop:**

) **APPEAL BRIEF - PATENTS**

) Group Art Unit: 1771

) Examiner: Elizabeth Cole

) Confirmation No.: 9594

) Appeal No.: 1

**SECOND SUBSTITUTE APPEAL BRIEF**

**Mail Stop APPEAL BRIEF - PATENTS**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In accordance with the Notification of Non-Compliant Appeal Brief mailed December 18, 2006, Appellants submit the attached Second Substitute Appeal Brief.

This appeal is from the decision of the Primary Examiner dated September 27, 2005, finally rejecting claims 1-36, which are reproduced as the Claims Appendix of this brief.

The \$500.00 Appeal Brief Fee was previously submitted with the Appeal Brief filed February 27, 2006.

The Commissioner is hereby authorized to charge any appropriate fees under 37 C.F.R. §§1.16, 1.17, and 1.21 that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800.



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### **I. Real Party in Interest**

The present application is assigned to SCA Hygiene Products AB which is the real party in interest.

### **II. Related Appeals and Interferences**

The Appellants' legal representative, or assignee, does not know of any other appeal or interferences which will affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

### **III. Status of Claims**

Claims 1-36 are pending, rejected and presently appealed.

### **IV. Status of Amendments**

An amendment was filed subsequent to final rejection. Claims 1, 16, 26, 29, and 30 have been amended to remove "carded" when referencing gauze. The amendments were meant to address the 35 U.S.C. § 112, first and second paragraph, rejections asserted in the September 27, 2005, Office Action.

In an Advisory Action, mailed December 20, 2005, the Office indicated that the amendments were to be entered for the purposes of appeal. Further, the Examiner indicated that the amendments overcame the 35 U.S.C. § 112, first and second paragraph, rejections.

### **V. Summary of Claimed Subject Matter**

The present invention (claim 1) relates to an absorbent material (see, e.g., reference number 4) comprising a mat of dry-laid cellulose fibres integrated with an air-laid non-woven gauze comprised of reinforcing textile fibres. *Page 6, lines 11-19.* The air-laid non-woven gauze (see, e.g., reference number 6) may be formed with an air-doffing apparatus card (see, e.g., reference numbers 1, 9) to provide a porous, penetrable gauze layer. *Page 6, lines 11-19.* The absorbent material (see, e.g., reference number 4) may be obtained by directly dry-laying the cellulose fibres on the newly formed gauze of textile fibres so that a portion of the cellulose fibres penetrate into the gauze to achieve a sufficient bonding with the textile fibres without any bonding agent. *Page 4, lines 17-22, and page 6, lines 11-19.*

The present invention (claim 29) also relates to an absorbent structure (see, e.g., reference number 4) including cellulose fibres reinforced with textile fibres. *Page 6, lines 11-19.* The structure may be produced by defibrating and mat-forming an absorbent material comprising a dry-laid mat of cellulose fibres integrated with an air-laid non-woven gauze of long reinforcing textile fibres (see, e.g., reference number 6). *Page 6, lines 11-19.* The air-laid non-woven gauze of long reinforcing textile fibres (see, e.g., reference number 6) may be formed with an air-doffing apparatus card (see, e.g., reference number 1, 9). *Page 6, lines 11-19.* The absorbent material (see, e.g., reference number 4) may be obtained by directly dry-laying the cellulose fibres on the newly formed gauze of textile fibres (see, e.g., reference number 6) so that a portion of the cellulose fibres penetrate into the gauze to achieve a sufficient bonding with the textile fibres without any bonding agent. *Page 4, lines 17-22, and page 6, lines 11-19.*

The present invention (claim 16) also relates to a method of producing an absorbent material (see, e.g., reference number 4) that includes a mat of dry-laid cellulose fibres integrated with an air-laid non-woven gauze comprised of reinforcing textile fibres (see, e.g., reference number 6). *Page 6, lines 11-19.* Textile fibres may be air-formed with an air-doffing apparatus card (see, e.g., reference number 1, 9) to form on a wire a non-woven gauze. *Page 6, lines 11-19.* The cellulose fibres may be directly dry-laid on the newly formed non-woven gauze of textile fibres to integrate the cellulose fibres with the non-woven gauze and form a mat wherein a portion of the cellulose fibres penetrate into the gauze to achieve a sufficient bonding with the textile fibres without any bonding agent. *Page 4, lines 17-22, and page 6, lines 11-19.*

The present invention (claim 26) also relates to a process for producing an absorbent product. *Page 1, lines 7-11 and page 6, lines 11-19.* Textile fibres may be air-formed with an air-doffing apparatus card (see, e.g., reference number 1, 9) to form on a wire (see, e.g., reference number 5) a non-woven gauze (see, e.g., reference number 6). *Page 6, lines 11-19.* The cellulose fibres may be directly dry-laid on the newly formed non-woven gauze of textile fibres to integrate the cellulose fibres with the non-woven gauze and form a mat (see, e.g., reference number 4) wherein a portion of the cellulose fibres penetrate into the gauze to achieve a sufficient bonding with the textile fibres without any bonding agent. *Page 4,*

*lines 17-22, and page 6, lines 11-19.* The mat (see, e.g., reference number 4) may be included in an absorbent product. *Page 1, lines 7-11.*

The present invention (claim 30) also relates to a method of producing an absorbent structure (see, e.g., reference number 4) including cellulose fibres and reinforcing textile fibres. *Page 6, lines 11-19.* Textile fibres may be air-formed with an air-doffing apparatus card (see, e.g., reference number 1, 9) to form on a wire (see, e.g., reference number 5) a non-woven gauze (see, e.g., reference number 6). *Page 6, lines 11-19.* The cellulose fibres may be directly dry-laid on the newly formed non-woven gauze of textile fibres to integrate the cellulose fibres with the non-woven gauze and form a mat wherein a portion of the cellulose fibres penetrate into the gauze to achieve a sufficient bonding with the textile fibres without any bonding agent. *Page 4, lines 17-22, and page 6, lines 11-19.* The integrated mat (see, e.g., reference number 4) of cellulose fibres and non-woven gauze may be defibrated and mat-formed. *Page 6, lines 11-19.*

The present invention relates to an absorbent material that has improved mechanical strength and that includes a mat of dry-layed cellulose fibers. *Page 1, lines 3-4.* The invention also relates to a method of producing such a material and its use. *Page 1, lines 4-5.*

According to the invention, the material (see, e.g., reference number 4) may be produced by air-laying textile fibers on a wire (see, e.g., reference number 5) to form a non-woven gauze (see, e.g., reference number 6), whereafter mat-forming of the cellulose fibers is effected on the textile fiber non-woven gauze, e.g., with the aid of an air-laying apparatus (see, e.g., reference number 1). The cellulose fibers penetrate into the non-woven gauze (see, e.g., reference number 6) and are integrated therewith. *Page 4, lines 6-10.*

Textile fibers are very likely to tangle together. *Page 4, lines 24-26.* When cellulose fibers and textile fibers are delivered to a wire simultaneously, the latter fibers will not be uniformly distributed unless they are sufficiently short and rigid. *Page 4, lines 24-26.*

One advantage of using textile fibre reinforcement in the dry-formed material is that the low hydrogen bond concentration of material enables it to be defibred in a gentler fashion than wet-formed pulp, without damage to the fibres. *Page 5, lines 1-6.* The reinforcing effect is thus retained when defibring the material and in the

subsequent mat-forming process. The long textile fibres provide a better reinforcement and are also cheaper than the short reinforcing fibres used in wet-formed pulp. *Page 5, lines 1-6.*

The inventive material (see, e.g., reference number 4) is produced by air-laying textile fibres on a wire (see, e.g., reference number 5) to form a non-woven gauze (see, e.g., reference number 6) with an air-doffing apparatus (see, e.g., reference number 1), e.g., with the aid of a Fehrer K21 card (see, e.g., reference number 9). The non-woven gauze (see, e.g., reference number 6), which becomes anchored to the wire (see, e.g., reference number 5) in the air-laying process, then passes through at least one cellulose pulp air-laying apparatus (see, e.g., reference number 2), whereby a mat of flash-dried cellulose pulp fibres is formed on the textile fibre non-woven gauze (see, e.g., reference number 6). Suction boxes (see, e.g., reference number 8) are disposed beneath the wire (see, e.g., reference number 5) opposite the card (see, e.g., reference number 1, 9) and cellulose pulp air-laying apparatus (see, e.g., reference number 2). The two-layer material is removed from the wire (see, e.g., reference number 5) and passes through a calendar (see, e.g., reference number 3), whereafter the material is rolled-up as finished material (see, e.g., reference number 4). *Page 6, lines 11-19.*

## **VI. Grounds of Rejection to be Reviewed on Appeal**

- 1) Claims 1-32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Matsumura* (U.S. Patent No. 3,984,898) in view of *Ruffo* (U.S. Patent No. 4,018,646) and *Fehrer* (U.S. Patent No. 4,972,551).
- 2) Claims 33-36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Matsumura* (U.S. Patent No. 3,984,898) in view of *Ruffo* (U.S. Patent No. 4,018,646) and *Fehrer* (U.S. Patent No. 4,972,551) and further in view of *Rosseland* (WO 97/45083).

## **VII. Argument**

### **1. Matsumura in view of Ruffo and Fehrer**

Claims 1-32 stand rejected as being unpatentable over *Matsumura* in view of *Ruffo* and *Fehrer*. *Matsumura* does not teach or suggest each feature of the

presently claimed invention and *Ruffo* and/or *Fehrer* do not remedy these deficiencies.

A. *Matsumura* does not teach an air-doffing apparatus card as presently claimed

Representative claim 1 recites an air-laid non-woven gauze formed with an air-doffing apparatus card.

Representative claim 16 recites air-forming textile fibres with an air-doffing apparatus card to form on a wire a non-woven gauze.

*Matsumura* does not teach or suggest such a gauze or process.

The Office relies on the following disclosure in *Matsumura* to incorrectly allege that *Matsumura* teaches an air-laid non-woven gauze formed with an air-doffing apparatus card or air-forming textile fibres with an air-doffing apparatus card to form on a wire a non-woven gauze:

A long fiber lap 157 that has previously been suitably opened by carding or the like is fed between feed roll 158 and feed plate 156, and defibrated by a lickerin roll 154.

*Matsumura*, column 8, lines 35-38.

The Office relies heavily on this disclosure of a carded fiber lap. However, this is not a teaching or suggestion of the presently claimed gauze formed with an air-doffing apparatus card. The carded fiber lap is disclosed as a starting product in *Matsumura*, but is subsequently defibrated by a lickerin in the process to form a gauze. The difference between the presently claimed gauze formed with an air-doffing apparatus card and a gauze formed from a lickerin is a significant difference and is expressly taught to be such by *Matsumura*.

The Examiner recognizes that "carding is a process wherein staple fibers are separated, aligned and formed into a sliver." Office Action of September 27, 2005, paragraph 2. *Matsumura* also teaches that with carding "most of the fibers are aligned in the machine or production direction...." *Matsumura*, column 1, lines 22-23. However, *Matsumura* also teaches that the lickerin method provides "random webbing." *Matsumura*, column 3, lines 3-9.<sup>1</sup>

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<sup>1</sup> "The lickerin method is the main method in use for random webbing rayon and other long fibers. As mentioned above, the productivity of this and other methods of random webbing is low and is proving to be a problem. In this invention, random webbing of 3 gm/M<sup>2</sup> of rayon with 1 lickerin unit is attained at a speed of 100 M/Min."

The difference between generally aligned (carding) versus random (lickerin) webbing is a significant process difference and results in significantly different gauze. For example, *Matsumura* discloses that carding results in easy delamination of the two layers of the sheet. *Column 3, lines 24-30*. Whereas, according to *Matsumura*, the use of a lickerin results in "little difference between the layers in strength and elongation, thus making it a non-woven material difficult to delaminate." *Column 3, lines 46-48*. Moreover, *Matsumura* discloses that carding results "in great difficulties in making a 2 gm to 5 gm/M<sup>2</sup> sheet of rayon independently," whereas "random webbing of 3 gm/M<sup>2</sup> of rayon with 1 lickerin unit is attained at a speed of 100 M/Min." *Column 3, lines 23-24 and 3-9*.

The Office further suggests that a lickerin is simply part of the card. However, this is misleading. As discussed above, the simple use of a lickerin compared to the use of an air-doffing apparatus card provide significantly different gauze. With carding the fibers are generally aligned, whereas with only a lickerin the fibers are randomly laid.

Additionally, the Office suggests that air laying and carding are distinct processes. This is also misleading. The presently claimed invention recites an air-doffing apparatus card. There must be some means to move the fibres which have been generally aligned. Thus, the air-doffing apparatus card of the present invention air-doffs (lays) the fibers as they are being carded in an essentially integrated process. For example, the *Fehrer* card is an air-doffing apparatus card that has carding drums and worker rollers to generally align fibers and discharge ducts, suction means and a collecting surface to air-doff the fibers. This is not taught or suggested by *Matsumura*.

The Office finally concludes that *Matsumura* teaches carded fibers (the carded fiber lap) that are then air laid and this is a "carded gauze". As discussed above, *Matsumura* does not teach a carded gauze. The fibers in the gauze of *Matsumura* are randomly laid and not generally aligned. *Matsumura* does not teach or suggest an air-laid non-woven gauze formed with an air-doffing apparatus card or air-forming textile fibres with an air-doffing apparatus card to form on a wire a non-woven gauze.



To remedy the deficiencies of *Matsumura*, the Office relies on *Fehrer*. But, *Fehrer* cannot be properly combined with *Matsumura* to reject the presently claimed invention.

"If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." MPEP § 2143.01(VI).

*Matsumura* specifically teaches that the fibers should be a random webbing and not aligned. However, the proposed modification (using a card of *Fehrer*) would provide generally aligned fiber. Thus, the proposed modification would change the principle of operation of *Matsumura* and is improper.

The Office asserts that "One of ordinary skill in the art would have been motivated to employ the apparatus of *Fehrer* to form the *Matsumura* et al fabric because *Matsumura* teaches that carded fibers should be supplied to the air doffing apparatus and the use of the *Fehrer* apparatus would simplify the process by providing an apparatus which both carded the fibers and air-doffed the fibers onto a collecting surface." However, *Matsumura* does not teach that carded fibers should be supplied to the air-doffing apparatus, as alleged by the Office. *Matsumura* instead teaches that a "carded lap" should be supplied to a lickerin and then air-doffed. The *Fehrer* card is an air-doffing apparatus card that has carding drums and worker rollers to generally align fibers and discharge ducts, suction means and a collecting surface to air-doff the fibers. Thus, one skilled in the art would not have been motivated to make the combination to "simplify the process." The combination does not simplify the process of *Matsumura*, but instead changes it dramatically. One skilled in the art would not have been motivated, as such, to combine *Matsumura* and *Fehrer* to arrive at the presently claimed invention.

Further, *Ruffo* does not teach or suggest the presently claimed invention which requires a gauze layer formed from an air-doffing apparatus card and, thus, does not remedy the deficiencies of *Matsumura*.

The Examiner asserts that *Ruffo* teaches an absorbent material which comprises an air laid gauze according to the present claims.<sup>2</sup> However,

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<sup>2</sup> See Office Action of April 11, 2005, at paragraph 3.

representative claim 1 generally recites an absorbent material wherein a porous, penetrable, non-woven gauze is air-laid with an air-doffing apparatus card. Absorbent material is then obtained by directly dry-laying the cellulose fibres on the gauze so that a portion of the cellulose fibres penetrate into the gauze to achieve a sufficient bonding with the textile fibres without any bonding agent. *Ruffo* does not teach such an invention. The material of *Ruffo* is a different material made a different way and *Ruffo* provides no suggestion or motivation to modify this different material such that one skilled in the art would arrive at the presently claimed invention.

As discussed in the specification at page 4, the claimed process of air-laying the textile fibres uses an air-doffing apparatus card to create a porous, easily penetrated non-woven gauze, such that air-laid cellulose fibres penetrate into the gauze to become integrated therewith. This gauze has textile fibres that are generally aligned in one direction and has a reduced number of fiber clumps. As a result, the non-woven gauze is more easily penetrated by the short cellulose fibres, allowing the resulting mat to be sufficiently bonded without any bonding agent.

*Ruffo* does not teach or suggest the claimed porous, penetrable gauze layer formed from an air-doffing apparatus card. *Ruffo* instead teaches textile fibres that have been individualized by lickerins. *Column 17, lines 53-64*. Lickerins defibrate the fibres but only to a certain degree. Small chunks and bits of fiber are left within the layer that is air-laid. Moreover, the fibres are air-laid in a random pattern.<sup>3</sup>

The Examiner recognizes that "carding is a process wherein staple fibers are separated, aligned and formed into a sliver." Office Action of September 27, 2005, paragraph 2.<sup>4</sup>

Thus, *Ruffo* does not teach or suggest the presently claimed invention which requires a gauze layer formed from an air-doffing apparatus card. Thus, *Ruffo* does not remedy this deficiency of *Matsumura*.

<sup>3</sup> *Matsumura* teaches that the lickerin method provides "random webbing." *Matsumura*, column 3, lines 3-9. See the discussion in *Matsumura and Fehrer* detailing the distinctions that result from the differences between an air-doffing apparatus card and a lickerin (generally aligned versus the random webbing).

<sup>4</sup> *Matsumura* also teaches that with carding "most of the fibers are aligned in the machine or production direction...." *Matsumura*, column 1, lines 22-23.

B. *Matsumura* does not teach that bonding occurs in the absence of a bonding agent

As conceded by the Examiner<sup>5</sup>, *Matsumura* does not teach that bonding occurs in the absence of a bonding agent, but instead employs a binder. The Examiner relies on *Ruffo* to allegedly cure this deficiency. Specifically, the Examiner relies upon *Ruffo* for the conclusion that mechanically interlocking the fibres with a needle loom would have been obvious to use in *Matsumura* to bind the web as an equivalent to using a binder. With due respect, the teachings of *Ruffo* do not cure the deficiencies of *Matsumura*.

While *Ruffo* may teach that the use of a bonding agent and mechanically interlocking the fibres are both known methods of bonding fibrous webs, *Ruffo* does not teach or suggest that they are freely interchangeable. In fact, *Ruffo* teaches that the "particular type of bonding technique chosen will depend on various factors well-known to those skilled in the art, e.g. the type of fibres, the particular use of the products, etc." See Column 12, line 65 through Column 13, line 1. Thus, *Ruffo* teaches that one skilled in the art would not randomly substitute mechanical bonding for adhesive bonding. In *Matsumura*, one skilled in the art has already selected binders as the bonding technique of choice based on the particular process of *Matsumura*. Thus, one skilled in the art would have been taught or motivated to not make the alleged substitution of mechanical binding for adhesive binding. The binding methods are not freely substitutable. Furthermore, the Office has provided no motivation for one skilled in the art to make the proposed substitution. Thus, with no motivation for one skilled in the art to substitute mechanical bonding for adhesive binders based on the *Matsumura* set of factors, the combination is improper.

C. Conclusion

*Matsumura* does not teach or suggest the presently claimed absorbent material. *Matsumura* does not teach or suggest an air-laid non-woven gauze formed with an air-doffing apparatus card or air-forming textile fibres with an air-doffing apparatus card to form on a wire a non-woven gauze. *Matsumura* does not teach

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<sup>5</sup> Office Action of July 2, 2004, page 5, lines 14-16.

that bonding occurs in the absence of a bonding agent, but instead employs a binder.

The Examiner's reliance on *Fehrer* and/or *Ruffo* does not remedy these deficiencies.

Therefore, applicants respectfully request that the rejection of claims 1-36 under 35 U.S.C. § 103(a) as being unpatentable over *Matsumura* in view of *Ruffo* and *Fehrer*, be withdrawn.

**2. *Matsumura* in view of *Ruffo* and *Fehrer* in further view of *Rosseland***

Claims 32-36 stand rejected as being unpatentable over *Matsumura* in view of *Ruffo* and *Fehrer* in further view of *Rosseland*. *Matsumura* does not teach or suggest each feature of the presently claimed invention and *Ruffo* and/or *Fehrer* do not remedy these deficiencies.

The Office relies on *Rosseland* solely for allegedly teaching that HTCMP and flash dried pulp can be employed to form air-laid nonwoven. However, *Rosseland* does not otherwise overcome the deficiencies of the combination of *Matsumura*, *Ruffo*, and *Fehrer*.

Therefore, applicants respectfully request that the rejection of claims 33-36 under 35 U.S.C. § 103(a) as being unpatentable over *Matsumura* (U.S. Patent No. 4,018,646) in view of *Ruffo* (U.S. Patent No. 4,018,646) and *Fehrer* (U.S. Patent No. 4,972,551) and further in view of *Rosseland* (WO 97/45083), be withdrawn.

**VIII. Claims Appendix**

See attached Claims Appendix for a copy of the claims involved in the appeal.

**IX. Evidence Appendix**

See attached Evidence Appendix.

**X. Related Proceedings Appendix**

See attached Related Proceedings Appendix.

Respectfully submitted,  
Buchanan Ingersoll PC

Date January 17, 2007

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## VIII. CLAIMS APPENDIX

### The Appealed Claims

1. (Previously Presented) An absorbent material comprising a mat of dry-laid cellulose fibres integrated with an air-laid non-woven gauze comprised of reinforcing textile fibres,

the air-laid non-woven gauze formed with an air-doffing apparatus card to provide a porous, penetrable gauze layer,

the absorbent material obtained by directly dry-laying the cellulose fibres on the newly formed gauze of textile fibres so that a portion of the cellulose fibres penetrate into the gauze to achieve a sufficient bonding with the textile fibres without any bonding agent.

2. (Original) An absorbent material according to claim 1, wherein the reinforcing textile fibres have a length of 10-100 mm.

3. (Original) An absorbent material according to claim 1, wherein the reinforcing textile fibres have a length of 32- 60 mm.

4. (Original) An absorbent material according to claim 1, which includes up to 10% by weight reinforcing fibres, calculated on a total weight of the absorbent material.

5. (Original) An absorbent material according to claim 4, which contains 2-8% reinforcing fibres.

6. (Original) An absorbent material according to claim 4, which contains 3-6% reinforcing fibres.

7. (Original) An absorbent material according to claim 1, wherein the reinforcing fibres are natural fibres or synthetic fibres.

8. (Original) An absorbent material according to claim 7, wherein the reinforcing fibres are cotton fibres, rayon fibres or polyester fibres.

9. (Original) An absorbent material according to claim 1, wherein the weight ratio between the cellulose fibre layer and the textile fibre layer is from 20:80 to 80:20.

10. (Original) An absorbent material according to claim 9, wherein the weight ratio is from 35:75 to 75:35.

11. (Original) An absorbent material according to claim 9, wherein the textile fibres have a gauge of 5-30 dtex.

12. (Original) An absorbent material according to claim 11, wherein the gauge is 10-25 dtex.

13. (Original) An absorbent material according to claim 11, wherein the gauge is 15-20 dtex.

14. (Original) An absorbent material according to claim 4, wherein the textile fibres have a gauge of 1-10 dtex.

15. (Original) An absorbent material according to claim 14, wherein the gauge is 1-4 dtex.

16. (Previously Presented) A method of producing an absorbent material that includes a mat of dry-laid cellulose fibres integrated with an air-laid non-woven gauze comprised of reinforcing textile fibres, comprising:

air-forming textile fibres with an air-doffing apparatus card to form on a wire a non-woven gauze; and

directly dry-laying the cellulose fibres on the newly formed non-woven gauze of textile fibres to integrate the cellulose fibres with the non-woven gauze and form a mat wherein a portion of the cellulose fibres penetrate into the gauze to achieve a sufficient bonding with the textile fibres without any bonding agent.

17. (Original) A method according to claim 16, wherein the reinforcing textile fibres have a length of 10-100 mm.

18. (Original) A method according to claim 17, wherein the length is 20-80 mm.

19. (Original) A method according to claim 17, wherein the length is 32-60 mm.

20. (Original) A method according to claim 16, wherein the material contains up to 10% by weight reinforcing fibres, calculated on a total weight of the absorbent material.

21. (Original) A method according to claim 20, wherein the material contains 3-8% reinforcing fibres.

22. (Original) A method according to claim 16, wherein the reinforcing fibres are natural fibres or synthetic fibres.

23. (Original) A method according to claim 22, wherein the reinforcing fibres are cotton fibres, rayon fibres or polyester fibres.

24. (Original) A method according to claim 16, wherein the weight ratio between the cellulose fibre layer and the textile fibre layer is from 20:80 to 80:20.

25. (Original) A method according to claim 24, wherein the weight ratio is from 35:75 to 75:35.

26. (Previously Presented) A process for producing an absorbent product, comprising:

air-forming textile fibres with an air-doffing apparatus card to form on a wire a non-woven gauze;

directly dry-laying the cellulose fibres on the newly formed non-woven gauze



of textile fibres to integrate the cellulose fibres with the non-woven gauze and form a mat wherein a portion of the cellulose fibres penetrate into the gauze to achieve a sufficient bonding with the textile fibres without any bonding agent; and including the mat in an absorbent product.

27. (Original) A process according to claim 26, wherein the integrated mat of cellulose fibres and non-woven gauze is directly incorporated in an absorbent product without intermediate defibration.

28. (Original) A process according to claim 26, wherein the integrated mat of cellulose fibres and non-woven gauze is defibred and mat-formed into an absorbent core that is then incorporated into an absorbent product.

29. (Previously Presented) An absorbent structure including cellulose fibres reinforced with textile fibres,

the structure having been produced by defibrating and mat-forming an absorbent material comprising a dry-laid mat of cellulose fibres integrated with an air-laid non-woven gauze of long reinforcing textile fibres,

the air-laid non-woven gauze of long reinforcing textile fibres being formed with an air-doffing apparatus card,

wherein the absorbent material is obtained by directly dry-laying the cellulose fibres on the newly formed gauze of textile fibres so that a portion of the cellulose fibres penetrate into the gauze to achieve a sufficient bonding with the textile fibres without any bonding agent.

30. (Previously Presented) A method of producing an absorbent structure including cellulose fibres and reinforcing textile fibres, comprising:

air-forming textile fibres with an air-doffing apparatus card to form on a wire a non-woven gauze;

directly dry-laying the cellulose fibres on the newly formed non-woven gauze of textile fibres to integrate the cellulose fibres with the non-woven gauze and form a mat wherein a portion of the cellulose fibres penetrate into the gauze to achieve a sufficient bonding with the textile fibres without any bonding agent; and

defibrating and mat-forming the integrated mat of cellulose fibres and non-woven gauze.

31. (Original) An absorbent material according to claim 1, wherein the reinforcing textile fibres have a length of 20-80 mm.

32. (Original) A process according to claim 26, wherein the absorbent product is one of a diaper, sanitary napkin, tampon, panty protector, incontinence guard, bed protector, wound or sore dressing, and a saliva absorbent.

33. (Previously presented) An absorbent material according to claim 1, wherein the cellulose fibres are flash dried.

34. (Previously presented) An absorbent material according to claim 1, wherein the cellulose fibres are HTCTMP.

35. (Previously presented) A method according to claim 16, wherein the cellulose fibres are flash dried.

36. (Previously presented) A method according to claim 16, wherein the cellulose fibres are HTCTMP

## **IX. EVIDENCE APPENDIX**

None.

## **X. RELATED PROCEEDINGS APPENDIX**

None.